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EXAMINER

PAYNE, DAVID C

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2633

DATE MAILED: 10/31/2003

15

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/324,253

Applicant(s)

CHEN, JERRY C.

Examiner

David C. Payne

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 16-32 and 34 is/are rejected.
- 7) ☒ Claim(s) 15 and 33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 25 September 2003 have been fully considered but they are not persuasive.

Regarding applicant's assertion that Thompson does not teach or suggest a frequency dependent disperser, a frequency selective modulator or a frequency dependent combiner as claimed but rather discloses a splitter (#152).

The office action of March 6, 2003 directs the applicant to Figure 4. Thompson rather clearly shows a wave division multiplexer (#152) and disclosed an alternate embodiment that uses a WDM optical demultiplexer to separate wavelengths (e.g., col./line: 11/10-15). Furthermore, Thomson disclosed that the demultiplexer is frequency sensitive (e.g., col./line: 11/15-20).

Thompson also disclosed that the modulators (160, 162, and 164) modulate respective frequencies $\lambda_0, \lambda_1, \dots, \lambda_N$, see col./line: 11/24-26. Again, Thompson disclosed that the "each modulator is designed to be wavelength sensitive for its particular channel and modulates its optical carrier without significantly affecting the other optical carriers," see col./line: 4/8-12.

The disclosure also states that the optional notch filters (154, 156, and 158) are used to *narrow* the optical carriers and not as a dispersive means since the wavelengths have already been separated via the demultiplexer (152).

Regarding applicant's assertion that there is no combiner in Figure 5. Examiner

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agrees with the applicant, however, no reference was made in the office action with respect to Figure 5. To the contrary, the cited Figure 4 does show a frequency dependent combiner in the NX1 multiplexer (166).

Finally, the amended claims limitation of transmission of light through the filter/converter is a varying function with respect to frequency over a selected bandwidth is an obvious observation over the prior art (see Figure 4A, col./line: 10/65-67), see below.

DETAILED ACTION

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- 2-4 17 29,30
3. Claims 1, 16, 28, 31, 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Thompson et al. US6282005 B1 (Thompson)*.

Re claims 1, 16, 28, 31 and 34, Thompson disclosed,

An optical device comprising: (figure 4)

a frequency dependent disperser (#152) that disperses an input optical signal to

form a dispersed signal having a plurality of frequencies;
a frequency selective modulator (#160, #162, #163, e.g., col./line: 4/5-12) that
modulates at least one of the plurality of frequencies; and
a frequency dependent combiner (#166) that combines the frequencies in the
dispersed signal to form an intensity modulated output signal. (e.g., col./line:
10/1-5)

Thompson does not describe the device as an optical frequency filter but does
disclose filtering (e.g., col./line: 11/5-10)

Thompson does not disclose the output power of the device varying as a function
of wavelength. Thompson disclosed the transmission of light into the
filter/converter is a varying function with respect to frequency over a selected
bandwidth (see Figure 4A, col./line: 10/65-67). It would have been obvious to one
of ordinary skill in the art at the time of invention that the same signal that enters
the device exits the device and retains the initial power distribution characteristics
based on the linear flow of the circuit.

The preamble of the claim 1, 16, 28, 31, 34 respectively, “an optical frequency
filter”, “frequency modulation (FM) to intensity modulation (IM) converter”,
“method of convert FM signals to IM signals”, “method of filtering”, “method to
shape transmission” has not been given patentable weight because clause found in
the preamble of an apparatus claim is not afforded the effect of a distinguishing
limitation unless the body of the claim sets forth structure which refers back to, is

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defined by, or otherwise draws life and breadth from the preamble. See *In re Casey*, 152 USPQ 235 (CCPA 1967); *Kropa V. Robie*, 88 USPQ 478 (CCPA 1951). Thus a preamble is denied the effect of a limitation where the claim is drawn to a structure and the portion of the claim following the preamble is a self-contained description of the structure and the portion of the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. See *Kropa V. Robie*, supra at 480. See also *EX parte Mott*, 190 USPQ 311, 313, (PTO BD of App. 1975).

Re claim 2

Thompson disclosed a device which separates out wavelengths where each modulator is "wavelength sensitive" (varying function) (e.g., col./line: 4/8-12)

Regarding claims 3, 4, 17, 29 and 30,

Thompson does not disclose that the light is transmitted in a monotonically varying function. Thompson disclosed a device that operates in a linear function (e.g., col./line: 16/20-50, 7/39-41).

It would have been obvious to one of ordinary skill in the art at the time of invention that the light with varies as taught my Thompson is a monotonic function. One is motivated as such since linear functions are monotonically varying functions.

4. Claims 6, 7 – 11, 13, 14, 18-26, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Thompson et al. US6282005 B1 (Thompson)* in view of *Kurokawa et al. US 6,122,419 (Kurokawa)*.

Re claims 6, 7 and 14, Thompson did not disclose time delays in the disperser and a AWG.

Kurokawa disclose an AWG where each wavelength experiences different delays (e.g., col./line: 25/10-20). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the Kurokawa AWG (e.g., Fig. 20) with the Thompson device to obtain the claimed invention. One is motivated as such since the use of an AWG and grating allows spectral division of high optical resolution. (e.g., col./line: 20/20-30).

Re claims 8-11, 13, 18-21, 23-26, and 32 the modified invention of Thompson and Kurokawa disclosed gratings (e.g., col./line: 7/20-35).

Re claim 22, Thompson disclosed a circulator (figure 20 #102).

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Thompson et al. US6282005 B1 (Thompson)* in view of *Nelson et al. US 3766392 (Nelson)*.

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Thompson did not disclose the use of a prism to disperse wavelengths.

Nelson did disclose a prism and modulator in a configuration as claimed. It would have been obvious to one of ordinary skill in the art at the time of invention to combine the prism of Nelson with the design of Thompson to obtain the claimed invention. One is motivated as such

Allowable Subject Matter

6. Claims 15 and 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is

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filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C. Payne whose telephone number is (703) 306-0004. The examiner can normally be reached on M-F, 7a-4p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (703) 305-4729. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Dcp
October 28, 2003


JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600